

WHAT IS CLAIMED IS:

1. A spark plug, comprising:

an elongated tubular housing having a central longitudinal axis and forming an inner chamber therein, the housing including a terminal at one end thereof and a base having an internal side wall at an opposite end, wherein a portion of the internal side wall comprises platinum-plating;

at least one ground prong extending from the base and towards the central longitudinal axis of the housing to an end referred to as P;

an insulator mounted within the inner chamber of the housing, having at least a portion which extends from the base, at a point referred to as W, along the central longitudinal axis and tapers to a core nose, a circular portion of which that is closest to P referred to as S, resulting in an air space formed between S and P referred to as A; and

an electrode embedded within the insulator, a tip of which protrudes from the insulator, the electrode having an exterior ring thereof which is closest to P referred to as E, P being closer to E than to W, P to E forming an electrical path which is different than the electrical path from E to S to A to P, the electrical resistance of P to E being greater than the electrical resistance of E to S to A to P, and the electrical resistance from E to S to W being greater than the electrical resistance of E to S to A to P, whereby a generated spark travels from E of the electrode to S of the insulator across air gap A to P of the ground electrode, and wherein the platinum plating of the internal side wall forms a reactive chamber that creates a plasma of fuel and air when the spark ignites the fuel.

2. The spark plug of claim 1, wherein the insulator extends beyond the at least one ground prong.

3. The spark plug of claim 1, wherein the at least one ground prong extends beyond the insulator.

4. The spark plug of claim 1, wherein the at least one ground prong and a terminal end of the insulator are aligned.

5. The spark plug of claim 1, including a ground ring connected to the base from which the at least one ground prong extends.

6. The spark plug of claim 1, wherein the at least one ground prong has sharp edges.

7. The spark plug of claim 1, wherein multiple ground prongs extend from the base.

8. The spark plug of claim 1, wherein the portion of the insulator extending from the base is substantially frustroconical in shape.

9. The spark plug of claim 1, wherein the spark travel is such so as to clean the insulator of surface deposits.

10. A spark plug, comprising:

an elongated tubular housing having a central longitudinal axis and forming an inner chamber therein, the housing including a terminal at one end thereof and a base having an internal side wall at an opposite end, wherein a portion of the internal side wall comprises platinum-plating;

a ground ring connected to the base and having multiple prongs each extending therefrom and towards the central longitudinal axis of the housing to an end referred to as P;

an insulator mounted within the inner chamber of the housing, having at least a portion which extends from the base, at a point referred to as W, along the central longitudinal axis and tapers to a core nose, a circular portion of which that is closest to P referred to as S, resulting in an air space formed between S and P referred to as A; and

an electrode embedded within the insulator, a tip of which protrudes from the insulator, the electrode having an exterior ring thereof which is closest to P referred to as E, P being closer to E than to W, P to E forming an electrical path which is different than the electrical path from E to S to A to P, the electrical resistance of P to E being greater than the electrical resistance of E to S to A to P, and the electrical resistance from E to S to W being greater than the electrical resistance of E to S to A to P, whereby a generated spark travels from E of the electrode to S of the insulator across air gap A to P of the ground electrode and the spark travel is such so as to clean the insulator of surface deposits, and wherein the platinum plating of the internal side wall forms a reactive chamber that creates a plasma of fuel and air when the spark ignites the fuel.

11. The spark plug of claim 10, wherein the insulator extends beyond the at least one ground prong.

12. The spark plug of claim 10, wherein the at least one ground prong extends beyond the insulator.

13. The spark plug of claim 10, wherein the at least one ground prong and a terminal end of the insulator are aligned.

14. The spark plug of claim 10, wherein the ground prongs have sharp edges.

15. The spark plug of claim 10, wherein the portion of the insulator extending from the base is substantially frustroconical in shape.

16. A spark plug, comprising:  
an elongated tubular housing having a central longitudinal axis and forming an inner chamber therein, the housing including a terminal at one end

thereof and a base having an internal side wall at an opposite end, wherein a portion of the internal side wall comprises platinum-plating;

a ground ring connected to the base and having multiple prongs each extending therefrom and towards the central longitudinal axis of the housing to an end referred to as P having sharp edges;

an insulator mounted within the inner chamber of the housing, having at least a portion which extends from the base, at a point referred to as W, along the central longitudinal axis and tapers in a frustoconical shape to a core nose, a circular portion of which that is closest to P referred to as S, resulting in an air space formed between S and P referred to as A; and

an electrode embedded within the insulator, a tip of which protrudes from the insulator, the electrode having an exterior ring thereof which is closest to P referred to as E, P being closer to E than to W, P to E forming an electrical path which is different than the electrical path from E to S to A to P, the electrical resistance of P to E being greater than the electrical resistance of E to S to A to P, and the electrical resistance from E to S to W being greater than the electrical resistance of E to S to A to P, whereby a generated spark travels from E of the electrode to S of the insulator across air gap A to P of the ground electrode, the spark travel is such so as to clean the insulator of surface deposits, and the energy requirements for the spark plug do not increase linearly with increased combustion chamber pressure, and wherein the platinum plating of the internal side wall forms a reactive chamber that creates a plasma of fuel and air when the spark ignites the fuel.

17. The spark plug of claim 16, wherein the insulator extends beyond the at least one ground prong.

18. The spark plug of claim 16, wherein the at least one ground prong extends beyond the insulator.

- 15 -

19. The spark plug of claim 16, wherein the at least one ground prong and a terminal end of the insulator are aligned.